



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1459  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/747,599	12/22/2000	Glynn Russell Ashdown	P98,1245	4501

7590 12/17/2003

Mr. W. Daniel Swayze, Jr.  
Texas Instruments Incorporated  
P.O. Box 655474  
M/S 3999  
Dallas, TX 75265

EXAMINER

NGUYEN, DINH P

ART UNIT	PAPER NUMBER
----------	--------------

2814

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/747,599

Applicant(s)

ASHDOWN, GLYNN RUSSELL

Examiner

DiLinh Nguyen

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9, 15 and 16 is/are allowed.
- 6) ☒ Claim(s) 1-7, 13, 14 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7, 13-14 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rife et al. (U.S. Pat. 5945736) in view of Villani (U.S. Pat. 5329426).

- Regarding claims 1, 13-14 and 17-18, Rife et al. disclose a semiconductor device (fig. 1, column 5, lines 26 et seq.) comprising:

a circuit board 112 having a mounting pad provided with an adhesive material in a mounting region (column 1, lines 15-18);

a mounting plate 116 formed of a thermally conductive material, the mounting plate having a first major surface being positioned on the mounting pad of the circuit board;

a heat dissipation element 146/120 thermally connected to the mounting plate and being spaced from the circuit board, the heat dissipating element being disposed in a position to receive air flow on both sides;

a heat generating component 118 mounted on the mounting plate at a second major surface opposite the first major surface, the heat dissipating element being spaced from the heat generating component to permit air flow between the heat dissipating element and the heat generating component; and

an extension 126 generally perpendicular to the mounting plate in a direction opposite the first major surface and extending substantially along the entire length of the mounting plate 116.

Rife et al. fail to disclose the mounting plate defining a plurality of adhesive flow openings therethrough.

Villani discloses a semiconductor device (fig. 1, column 2, lines 25 et seq.) comprising: a mounting plate 12 defining a plurality of openings 16 therethrough. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Rife et al. to provide a good thermal contact and to form a pin grid array for the semiconductor package device, as shown by Villani.

- Regarding claim 2, Rife et al. disclose the adhesive material is electrical solder (column 1, lines 15-18).
- Regarding claim 3, Rife et al. disclose the adhesive material is thermal adhesive.
- Regarding claims 4-7, Rife et al. disclose the heat dissipation element 146/120 includes: a portion generally parallel to the mounting plate and spaced therefrom; wherein the portion overlies the mounting plate; wherein the portion includes lateral extensions and wherein the mounting plate the extension and the portion form a U shape.
- Regarding claims 19-20, Rife et al. disclose the circuit board is in a first plane, the heat dissipating element is in a second plane and the heat generating element is in the third plane, the first and second planes are space apart and the

third plane having the heat generating element is disposed between the first and second plane and wherein the first, second and third planes are substantially parallel to one another.

***Allowable Subject Matter***

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**REASONS FOR ALLOWANCE**

Claims 9 and 15-16 are allowed.

The following is an examiner's statement of reasons for allowance:

Kikushima, Rife et al. and Villani fail to disclose the combination of all the limitations recited, including a channel along an edge of the mounting plate, wherein the channel receiving a tab extending from the heat generating component.

Therefore, the overall structure of the heat sink assembly is neither anticipated nor rendered obvious over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (571) 272-1712. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

DLN  
December 11, 2003